

424 Rec'd PCT/PTO 0 8 JUN 2000

FORM PTO-1390 REV. 5-93		US DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEYS DOCKET NUMBER P00,1068
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371			U.S. APPLICATION NO. (if known, see 37 CFR 1.5) 09/581046
INTERNATIONAL APPLICATION NO. PCT/DE98/03675	INTERNATIONAL FILING DATE 15 DECEMBER 1998	PRIORITY DATE CLAIMED 23 DECEMBER 1997	
TITLE OF INVENTION SWITCHED CONNECTION SYSTEM WITH ACCESS TO ITS OWN RESOURCES VIA THE INTERNET			
APPLICANT(S) FOR DO/EO/US UMESH BHAVSAR			
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:			
1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. 3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay. 4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date. 5. <input checked="" type="checkbox"/> A copy of International Application as filed (35 U.S.C. 371(c)(2)) - drawings attached. a. <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> has been transmitted by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)) - drawings attached. 7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)) a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> have been transmitted by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input checked="" type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input checked="" type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). Items 11. to 16. below concern other document(s) or information included: 11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98; (PTO 1449, Prior Art, Search Report). 12. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 C.F.R. 3.28 and 3.31 is included. (SEE ATTACHED ENVELOPE) 13. <input checked="" type="checkbox"/> Amendment "A" Prior to Action. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 14. <input type="checkbox"/> A substitute specification. 15. <input type="checkbox"/> A change of power of attorney and/or address letter. 16. <input checked="" type="checkbox"/> Other items or information: a. <input checked="" type="checkbox"/> Submission of Informal Drawings - 2 sheets of drawings, Figures 1-3; and Request for Approval of Drawing Modifications, 2 sheets of drawings, Figures 1-3; b. <input checked="" type="checkbox"/> EXPRESS MAIL # EL 544622798US dated June 8, 2000.			

U.S. APPLICATION NO (if known, see 37 C.F.R. 1.5)

INTERNATIONAL APPLICATION NO

ATTORNEY'S DOCKET NUMBER

09/581046

PCT/DE98/03675

P00,1068

17. ☒ The following fees are submitted:**BASIC NATIONAL FEE (37 C.F.R. 1.492(a)(1)-(5):**

Search Report has been prepared by the EPO or JPO \$840.00

International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) .. \$670.00

No international preliminary examination fee paid to USPTO (37 C.F.R. 1.482) but
international search fee paid to USPTO (37 C.F.R. 1.445(a)(2)) \$760.00Neither international preliminary examination fee (37 C.F.R. 1.482) nor international
search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO \$970.00International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) and all
claims satisfied provisions of PCT Article 33(2)-(4) \$96.00**ENTER APPROPRIATE BASIC FEE AMOUNT =**

CALCULATIONS

PTO USE ONLY

\$ 840.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months
from the earliest claimed priority date (37 C.F.R. 1.492(e)).

\$

Claims

Number Filed

Number
Extra

Rate

Total Claims

08 - 20 =

0

X \$ 18.00

\$

Independent Claims

03 - 3 =

0

X \$ 78.00

\$

Multiple Dependent Claims

\$260.00 +

\$

TOTAL OF ABOVE CALCULATIONS =

\$ 840.00

Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also
be filed. (Note 37 C.F.R. 1.9, 1.27, 1.28)

\$

SUBTOTAL =

\$ 840.00

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30 months
from the earliest claimed priority date (37 CFR 1.492(f)).

\$

TOTAL NATIONAL FEE =

\$ 840.00

Fee for recording the enclosed assignment (37 C.F.R. 1.21(h)). The assignment must be
accompanied by an appropriate cover sheet (37 C.F.R. 3.28, 3.31). \$40.00 per property

+

TOTAL FEES ENCLOSED =

\$ 840.00

Amount to be
refunded

\$

charged

\$

a. ☒ A check in the amount of \$ 840.00 to cover the above fees is enclosed.b. ☐ Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A
duplicate copy of this sheet is enclosed.c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any
overpayment to Deposit Account No. 08-2290. A duplicate copy of this sheet is enclosed.NOTE: Where an appropriate time limit under 37 C.F.R. 1.494 or 1.495 has not been met, a petition to revive (37 C.F.R. 1.137(a) or (b)) must be
filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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SIGNATURE

Steven H. Noll

NAME

28,982

Registration Number

BOX PCT
IN THE UNITED STATES DESIGNATED/ELECTED OFFICE
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE
UNDER THE PATENT COOPERATION TREATY--CHAPTER II

5	APPLICANT:	UMESH BHAVSAR
	ATTORNEY DOCKET NO.:	P00,1068
	INTERNATIONAL APPLICATION NO:	PCT/DE98/03675
	INTERNATIONAL FILING DATE:	15 DECEMBER 1998
	INVENTION:	“SWITCHED CONNECTION SYSTEM WITH ACCESS TO ITS OWN RESOURCES VIA THE INTERNET”
10	Assistant Commissioner for Patents, Washington D.C. 20231	

AMENDMENT "A" PRIOR TO ACTION

Sir:

Applicants herewith amend the above-referenced PCT application, and
 15 request entry of the Amendment prior to examination on the United States
 Examination Phase.

IN THE SPECIFICATION:

On page 1:

cancel lines 1-6 and substitute

20 --SPECIFICATION

TITLE

“SWITCHED CONNECTION SYSTEM WITH ACCESS TO ITS OWN RESOURCES VIA THE INTERNET”

BACKGROUND OF THE INVENTION

25 Field of the Invention

The invention relates-- therefor;

in line 7, after "its", insert --own--;

in line 8, cancel "by means of" and substitute --via-- therefor;

above line 9, insert

--Description of the Related Art--;

5 in line 9, cancel "In view of the" and substitute --The-- therefor;

in lines 10-11, cancel ", it is clear" and substitute --clearly indicates--
therefor;

in lines 11-12, cancel "network of networks" and substitute --overall
network of smaller networks-- therefor;

10 in line 13, cancel "=";

in line 14, after ")", insert --,--;

in line 16, after "particular", insert --,--;

in line 17, cancel the first "the" and substitute --of extensive-- therefor,
and cancel the second "the";

15 in line 18, cancel "are extensive";

in line 24, cancel ". This is due to the fact that" and substitute --because-
- therefor;

in line 30, cancel "the moment" and substitute --the present-- therefor;

in line 32, after "of", insert --these--, and cancel "in the switching nodes
20 are" and substitute --include-- therefor; and

in line 34, after "information", insert --,--.

On amended page 2:

above line 10, insert--SUMMARY OF THE INVENTION--;

cancel line 10 and substitute --The invention is based-- therefor;

25 in line 11, cancel "specifying and substitute --providing-- therefor;

cancel line 14 and substitute --invention is to utilize the Internet to use
the-- therefor;

in line 15, cancel "." and substitute --, and to implement-- therefor;

cancel line 16 and substitute --a number of-- therefor;

in line 17, cancel "the Internet" and substitute --Internet features--
therefor, and cancel "can be";

cancel line 18;

in line 19, cancel "application, and cancel "present subject";

5 in line 20, cancel "matter of the";

cancel lines 24-25 and substitute

-- This objects is achieved by an arrangement for connecting a switched
connection network to the Internet, comprising a switching node, and an operator
console which is connected to the switching node via an interface, the Internet
10 being connected to the switching node via the operator console and the interface.

This object is also achieved by an operator console for connecting a
switched connection network to the Internet, comprising operator functions which
are designed so that they can be activated via a connection to the Internet.

This object is also achieved by a method for accessing resources in a
15 switching node of a switched connection system via the Internet, comprising the
steps of connecting an operator console to the switching node, connecting the
operator console to the Internet, providing an application programming interface,
and accessing an Internet-related application via the application programming
interface which is provided for an operator application to access a resource of the
20 switching node. -- therefor;

cancel line 26 and substitute --The invention provides-- therefor;

cancel line 29 and substitute --PSTN. Operator-- therefor;

in line 30, after "can", insert --largely--; and

cancel line 32 and substitute --is low. The present invention forms the--
25 therefor.

On amended page 2a:

cancel lines 1-3 and substitute

-- Further advantageous developments of the invention include having
operator functions in the operator console that can be activated via a connection to

the Internet, as well as implementing the operator console on a Microsoft Windows NT™ based platform. The operator console may utilize a conventional interface for connecting to a switching node and have a port for connecting to the internet. Operator functions of the console can be automatically executed by an application within the operator console. And finally, the operator console may have an application that acts as a proxy agent between the switched connection and the Internet.-- therefor;

above line 4, insert --BRIEF DESCRIPTION OF THE DRAWINGS --;

and

in line 7, cancel “, where:” and substitute --.-- therefor.

On page 3:

in line 1, cancel “shows” and substitute --is a schematic diagram showing--
- therefor, and cancel “an” and substitute --the inventive-- therefor;

cancel lines 2-3 and substitute --interconnection of a PSTN with the
Internet,-- therefor;

in line 4, cancel “shows” and substitute --is a schematic diagram showing--
- therefor, and cancel “a structure which” and substitute --an inventive structure--
therefor;

cancel line 5 and substitute --in which a-- therefor;

in line 8, cancel “shows” and substitute --is a schematic diagram showing--
- therefor;

above line 13, insert --DESCRIPTION OF THE PREFERRED
EMBODIMENTS--;

in line 14, cancel “= “;

in line 16, cancel “also”;

in line 14, cancel “= “;

in line 18, cancel “= “;

in line 23, cancel “Programms” and substitute --Programs-- therefor;

in line 24, cancel “= “;

in line 28, cancel "=";
in line 29, cancel "=";
in line 30, cancel "=";
in lines 30-31, cancel "there is" and substitute --shows-- therefor;
5 in line 32, cancel "=";
in line 33, cancel "=";
in line 35, cancel the first "(", and cancel "="; and
in line 37, cancel "=".

On page 4:

in line 2, cancel "as is" and substitute --NW.-- therefor;
cancel line 3 and substitute --The-- therefor;
in lines 5-6, cancel "as indicated by a thin double arrow";
in line 6, cancel "=";
15 in line 8, cancel "designated by";
in line 9, cancel "=", cancel the first ",", and cancel "designated by";
in line 10, cancel "=", and cancel ",";
cancel line 11 and substitute --these functions. The invention develops--
therefor;
20 in line 12, cancel "based is to develop";
in line 13, cancel "to use" and substitute --utilizes-- therefor;
in line 16, cancel "; in" and substitute --. In-- therefor;
in line 18, cancel "by means of" and substitute --via-- therefor;
in line 19, cancel "would require" and substitute --requires-- therefor;
25 in line 21, after "all", insert --of--;
in line 24, after "functions", insert --,--, cancel "in any case", and after
"present", insert --,--;
in line 25, cancel "and the" and substitute --with low-- therefor;
in line 26, cancel "entailed is low";
30 in line 27, cancel "At the moment" and substitute --Presently-- therefor;

in line 32, cancel “= ”; and

in line 37-38, cancel “functionalities which are given” and substitute --
functions described-- therefor.

On page 5:

- 5 in line 12, cancel “themselves”;
in line 15, after “)”, insert --themselves--;
in line 18, “. The” and substitute --. This involves the-- therefor;
in line 20, after “example”, insert --,--;
in line 23, cancel “Operator” and substitute --This involves operator--
10 therefor;
in line 25, cancel “Operator” and substitute --This involves operator--
therefor, and after “measures”, insert --that--;
in line 29, cancel the first “the” and substitute --this-- therefor;
in line 31, cancel “= ”;
15 in line 33, before “repeat”, insert --literally--; and
in line 34, cancel “literally”.

On page 6:

- in line 6, after “example”, insert --,--;
in line 9, after “call”, insert --;--;
20 in line 10, after “call”, insert --;--;
in line 11, after “registration”, insert --; and--;
in line 12, after “or”, insert --,--;
in line 13, after “necessary”, insert --,--;
in line 16, cancel “and nevertheless handle” and substitute --while
25 handling-- therefor;
in line 91, after “i.e.”, insert --,--;
in line 28, cancel “by means of” and substitute --via-- therefor;
in line 32, cancel “marks” and substitute --can mark-- therefor;

in line 33, cancel “enters” and substitute --enter-- therefor; and
in line 34, cancel “to”.

On page 7:

in line 1, cancel “,” and substitute --which is-- therefor;
5 in line 4, after “interval”, insert --,--;
in line 10, cancel “= ”;
in line 27, cancel “. These include” and substitute --, including-- therefor;
in line 30, after “,”, insert --and--;
in line 31, cancel “Offering” and substitute --Also, offering-- therefor, and
10 cancel “. This”; and
in line 35, cancel “another attempt” and substitute --additional attempts--
therefor.

On page 8:

in line 2, cancel “. Different” and substitute --can be provided, as well as
15 different-- therefor;
in line 3, cancel “are available”;
in line 4, cancel “application” and substitute --invention-- therefor;
in line 11, cancel “= ”;
in line 13, after “applications”, insert --AA--;
20 in line 16, cancel “application” and substitute --invention-- therefor;
in line 29, after “Access”, insert --is also provided--, and eliminate the
space between “middle” and “ware”; and
in line 31, cancel “patent application” and substitute --invention is also--
therefor.

25 **On page 9:**

in line 2, after “as”, insert --a--;
in line 6, after “as”, insert --an--;

- in line 7, cancel “a” and substitute --an-- therefor;
in line 8, after “are”, insert --:--;
in line 9, after “forwarding”, insert --:--;
in line 11, after “subscriber”, insert --:--;
5 in line 12, cancel “of”, and after “information”, insert --:--;
in line 13, after “busy”, insert --; and--;
in line 14, cancel “divert” and substitute --diversion-- therefor;
in line 17, cancel “,” and substitute --, which is-- therefor;
in line 22, after “node”, insert --in this invention”, and after “all”, insert --
10 of--;
in line 25, after “all”, insert --of--;
in line 28, after “permits”, insert --use of--;
in line 29, after “at” insert --a--;
cancel line 31 and substitute --A first embodiment permits-- therefor;
15 in line 35, cancel “receive” and substitute --receives-- therefor; and
in line 36, cancel “for” and substitute --to-- therefor.

On page 10:

- in line 1, before, “browser”, insert --i.e., his--;
in line 6, cancel “,” and substitute --.-- therefor;
20 in line 14, after “as”, insert --a--;
in line 20, cancel “the” and substitute --The-- therefor, and cancel “an”
and substitute --a-- therefor;
in line 27, cancel “.” and substitute --;-- therefor;
in line 29, after “normal”, insert --:--;
25 in line 30, cancel “an” and substitute --An-- therefor;
in line 34, after “numbers”, insert --,--; and
in line 36, cancel “:”.

On page 10a:

in line 1, cancel “.”.

On page 11:

in line 3, cancel “said” and substitute --the-- therefor;

5 in line 4, cancel “.” and substitute --;-- therefor;

in line 5, cancel “.”;

in line 13, cancel “,” and substitute --;-- therefor;

in line 15, after “,”, insert --this--, and cancel “to that effect”;

in line 16, cancel “.”;

10 in lines 17-18, cancel “. The NCP: PSTN proxy call application” and
substitute --and-- therefor;

in lines 19-20, cancel “(Internet Service Provider Point of Presense)”;

in line 26, cancel “.”, and substitute --.-- therefor;

in line 27, after “i.e.”, insert --,--; and

15 in lines 37-38, cancel “by means of” and substitute --via-- therefor.

On page 12:

in line 1, cancel “in order” and substitute --,-- therefor;

in line 2, cancel “It is to be noted here that the” and substitute --The--
therefor;

20 in line 4, after “example”, insert --,--;

in line 7, cancel “Acts” and substitute --This application acts-- therefor;

in line 13, cancel “it” and substitute --this application-- therefor;

in line 15, cancel “Via the Internet the” and substitute --The-- therefor;

in line 16, after “interrogation”, insert --via the Internet--, and cancel “.”;

25 in line 17, cancel “it” and substitute --the application-- therefor;

in line 21, cancel “.”;

in line 27, cancel “said” and substitute --this-- therefor;

in line 28, cancel “.”;

in line 30, cancel "is to be noted that it";
in line 31, before "mobile", insert --a--; and
in line 35, after "example", insert --,--.

On page 13:

5 cancel line 9 and substitute --, the-- therefor;
in line 10, cancel "(Network Control Platform)";
in line 11, cancel "(switch)";
in line 13, cancel "(Network Control Platform)";
in lines 23-24, cancel "It is to be noted that the" and substitute --The--
10 therefor;
in line 24, cancel "here" and substitute --in this arrangement--; and
below line 26, insert
-- The above-described invention is illustrative of the principles of the
present invention. Numerous modifications and adaptations thereof will be readily
15 apparent to those skilled in this art without departing from the spirit and scope of
the present invention.--.

IN THE CLAIMS:

On page 14:

line 1, replace "Patent Claims" with --WHAT IS CLAIMED IS:--;
20 **Please amend claims 1-8 as follows.**
1. (Amended) An arrangement for connecting a switched connection
network to the Internet [(GI)], comprising: [in which,]
[- the switched connection network has] a switching node; and [(SW)]
[- the switching node is connected to] an operator console [(OSS)] which
25 is connected to said switching node via an interface, [characterized in that] the
Internet being [is] connected to said [the] switching node via said [the] operator
console [(OSS, NCP)] and said [the] interface.

2. (Amended) The arrangement as claimed in claim 1, wherein said operator console has [characterized in that the] operator functions [(OA) which are implemented in the operator console are], said operator functions being designed so that they can be activated via a connection to the Internet.
- 5 3. (Amended) The arrangement as claimed in claim 1, wherein said [one of the preceding claims, characterized in that the] operator console is operated on a platform utilizing the Microsoft Windows NT™ operating system [in the form of a platform which can be operated with an operating system which is operated under the Windows NT trade name].
- 10 4. (Amended) An operator console [(OSS, NCP)] for connecting a switched connection network to the Internet, comprising [(GI), characterized in that the] operator functions [(OA)] which are [implemented in the operator console are] designed so that they can be activated via a connection to the Internet.
- 15 5. (Amended) The operator console as claimed in claim 4, further comprising: [characterized by]
a conventional interface for connecting to a switching node [(SW)], and
a port for connecting to the Internet.
- 20 6. (Amended) The operator console as claimed in claim 4 [or claim 5], further comprising [characterized by] an application which automatically executes [brings about automatic execution of] an operator function.
7. (Amended) The operator console as claimed in claim 4, further comprising [one of claims 4, 5 or 6, characterized by] an application which acts as a proxy agent between said switched connection network and the Internet.

8. (Amended) A method for accessing resources in a switching node [(SW)] of a switched connection system via [by means of] the Internet [(GI)], comprising the steps of:

5 connecting [in which] an operator console [(OSS) is connected on the one hand] to said [the] switching node;
 connecting said operator console [and on the other] to the Internet; [,]
 providing an application programming interface; and
 accessing [[lacuna] as a consequence] an Internet-related application [is accessed] via said [an API() application programming interface()] interface] which
10 is provided for an operator application to access a resource of said [the] switching node.

IN THE ABSTRACT

On page 16:

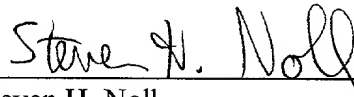
cancel lines 2-3;
15 in line 4, cancel the second “the” and substitute --a-- therefor;
 in line 6, cancel “, the” and substitute --. The-- therefor;
 in line 8, cancel “being” and substitute --are-- therefor;
 in line 9, after “at”, insert --a--; and
 cancel line 10.

REMARKS

20 The present Amendment revises the specification and claims to conform to United States patent practice, before examination of the present PCT application in the United States National Examination Phase. All of the changes are editorial and applicant believes no new matter is added thereby. The
25 amendment of claims 1-8 is not intended to be a surrender of any of the subject matter of those claims.

Early examination on the merits is respectfully requested.

Submitted by,



(Reg. No. 28,982)

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(312) 876-0200
Attorney for Applicant(s)

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which provide external applications with access to the resources in the PSTN switching node. This is technically possible, but the associated financial cost is very high.

WO 97/22209 discloses an intelligent network which is connected to the Internet via its service control point. In this system, the resources for services are stored on a server which can be accessed via the Internet, providing worldwide access.

The subject matter of the application is based on the object of specifying a system which permits Internet applications to access resources of the switching node. A further object of the present application is to indicate how the Internet can use the resources in the PSTN switching nodes at minimum cost. It is also shown how a number of features occupied with the Internet which are not yet available can be implemented by means of the subject matter of the application. A further object of the present subject matter of the application is to indicate how the high expenditure which has previously been necessary to enable the Internet to access resources in the switching node can be drastically reduced.

The object is achieved by the independent patent claims.

The subject matter of the application provides the Internet with access to the existing resources and to the intelligence in the switched connection network PSTN, in which case, to a large extent, operator functions which are in any case already present can be utilized in the implementation and the additional cost is low. The subject matter of the application forms the basis for features which require interaction between the switched connection network PSTN and the Internet network.

Further advantageous developments of the subject matter of the application are given in the independent claims.

The subject matter of the application is explained in more detail below as an exemplary embodiment to a degree which is necessary for comprehension, and with reference to figures, where:

Description

Switched connection system with access to its resources via the Internet

5

The subject matter of the application relates to a switched connection system with access to its resources by means of the Internet.

In view of the exponential growth of the Internet and the increasing trend to use it, it is clear that the Internet will become the network of networks. The other worldwide network, namely the public telephone network PSTN (= Public Switched Telephone Network) and the Internet are becoming closely inter-related and each can benefit from the other. In particular the Internet can benefit from the PSTN network because the intelligence and the resources in the PSTN network are extensive. The Internet has been slow in making full use of the extensive intelligence in the switching nodes because the interface between the PSTN and the Internet is not clearly defined. Even after a clear interface has been defined, the cost in the switching nodes is too high to be justified. This is due to the fact that the costs to implement a feature in a switching node are very much higher than in a PC (personal computer). The problem is how to bring together the two technologies and provide Internet features with access to the intelligence and the resources of the PSTN network at a minimum cost.

At the moment it is very difficult to use the resources of a switching node for Internet services. Examples of resources in the switching nodes are call control, switching, administration of basic data (database), hardware information etc. One approach to arriving at a solution is based on developing new application programs and new interfaces in the switching nodes

which provide external applications with access to the resources in the PSTN switching node. This is technically possible, but the associated financial cost is very high.

5 The subject matter of the application is based on the object of specifying a system which permits Internet applications to access resources of the switching node. A further object of the present application is to indicate how the Internet can use the
10 resources in the PSTN switching nodes at minimum cost. It is also shown how a number of features occupied with the Internet which are not yet available can be implemented by means of the subject matter of the application. A further object of the present subject
15 matter of the application is to indicate how the high expenditure which has previously been necessary to enable the Internet to access resources in the switching node can be drastically reduced.

 The object is achieved by the independent
20 patent claims.

 The subject matter of the application provides the Internet with access to the existing resources and to the intelligence in the switched connection network PSTN, in which case, to a large extent, operator
25 functions which are in any case already present can be utilized in the implementation and the additional cost is low. The subject matter of the application forms the basis for features which require interaction between the switched connection network PSTN and the Internet
30 network.

 Further advantageous developments of the subject matter of the application are given in the independent claims.

 The subject matter of the application is
35 explained in more detail below as an exemplary embodiment to a degree which is necessary for comprehension, and with reference to figures, where:

platform). The switching node has an interactive connection to the operator console via a network, as is represented by a thick double arrow NW (= Network). The application programs AP1 have an interactive connection to the application programs AP2, as indicated by a thin double arrow RPCr&r (= Remote Procedure Call Requests and Responses).

The software has functions, designated by MW (= Middleware), and interfaces, designated by APIs (= Application Programming Interface), for accessing these functions. The idea on which the application is based is to develop applications from third parties in external platforms and to use the middleware in switching nodes in order to implement intelligent functions. The applications use predefined APIs in order to obtain access to the middleware; in one preferred embodiment, access to the network services is possible only by means of these APIs. Normally, the middleware necessary for new applications requires, for its implementation, extremely high expenditure in the switching nodes because all the functions and interfaces would have to be implemented. The invention is based on the fact that, to a large extent, operator functions which are in any case already present can be used to implement the invention, and the additional cost entailed is low.

At the moment, almost all switching nodes, including those of the switched connection system EWSD (Elektronisches Wählsystem digital, manufacturer-specific) have the functionality of an operator console. In the case of EWSD, the console is in the form of a PC (Personal Computer) which is connected to the switching node via an interface BA-ISDN (= Basic Access-Integrated Services Digital Network) which is also referred to as Basic Rate Interface by experts. The operator console OSS which is connected to the switching node provides different functionalities which are given

below. The list discloses a wide range of features which are conventionally not available to one subscriber.

5 Operator feature requirements

- Call requesters. A calling subscriber can request the services of the operator by selecting the LAC/DN (Local Area Code/Directory Number) of the operator.
- 10 - Qsi (Quasi) automatic call permits subscribers of a local exchange to set up wide-area traffic connections by themselves dialing the DN (Directory Number) for the service and the number of the B subscriber (subscriber to be called),
15 although the call is directed to an operator for an operator service and an A subscriber connection number, identification and checking.
- Transfer to the operator. The transfer of the call to the operator in cases where the operator's help
20 is needed, for example in the case of an ANI (Automatic Number Identification) error.
- Call acceptance/call presentation
- Manual acceptance. Operator measures necessary to accept the call from the switch node.
- 25 - Automatic acceptance. Operator measures are not necessary to accept the call from the switching node.
- Automatic greeting. After a call has been
30 connected to an operator, the feature permits the operator to send the greetings formula to the calling subscriber from an INDAS (= Individual Digital Announcement Machine) record, instead of being forced to repeat the standard formula literally for each call.
- 35 Call forwarding. Call forwarding refers to the diverting of a call by the operator

to another subscriber.

- Requested call forwarding. Requested call forwarding refers to the extension of a call by the

operator while the calling A subscriber remains connected to the operator.

- Delayed call forwarding.

5 Delayed call handling: This feature permits the operator to delay the handling and placing of calls to a later time, for example at the request of the subscriber. DCH (Delayed Call Handling) provides the following possibilities:

- registration of a call
- 10 - searching for a registered call
- changing details of the registration
- carrying out the call at the time provided or if necessary call forwarding devices, available.

15 Forwarding a call: The call holding feature permits an operator who is occupied with an existing call to remain connected to the call and nevertheless handle another call. If the operator holds a set-up A subscriber to the operator for a B subscriber call, the system puts the call into the holding state, i.e. both
20 the A subscriber and the B subscriber remain connected to their actuated speech path and only the operator is removed from the call.

Call handling devices

- Notification of the duration of a call. If
25 requested by a subscriber who is involved in the call, the operator can mark a call for notification. This can be a verbal operator notification or notification by means of a special signal tone.
- 30 - Automatic call duration limitation (ACDL). If requested by a subscriber who is participating in a call, the operator marks the call for ACDL and enters the duration. The system supplies a signal tone to a

short time in advance, specified by the administration, in order to warn both parties that their requested time interval has expired. At the end of the requested time interval the system ends the call.

- 5 - Simulated response. If the response signal is not received from the B end of the call although the B subscriber is already connected, the operator can simulate the response signal by manual measures.
- Toll metering. The operator can update AMA
10 (= Automatic Message Accounting) cards and initiate and/or terminate the toll metering period for activated calls. Call tolls can be charged to the toll account of a third party.
- Local access to the database. The operator has
15 access to the local database.
- Call partition. The partition function permits the operator to interrupt the communication with a specific subscriber of the activated call (to interrupt either the A subscriber or the B
20 subscriber). The activated call in this case may be a three-way conversation. In this case, the three-way conversation is partitioned, the specific subscriber is placed in the holding function and the other subscriber remains in an activated connection to the operator.
25
- Checking functions. There are various checking possibilities. These include checking the call number of the A subscriber, checking the number of the call toll account (when the call tolls are
30 charged to a third party), checking the busy state. Offering in a connecting line. This enables the operator to offer the call to a busy subscriber.
- Repeated attempt in a busy state. The operator can
35 make another attempt at switching, allowing for a busy state of a trunked channel, by releasing the connection and setting up the connection again.

Graphic display/representation of traffic and performance statistics and reports. Different performance reports are available.

According to the application, access to the
5 switching node and the network resources is provided for a subscriber device.

Fig. 1 shows an Internet user IU who has set up a connection to his Internet provider ISP POP via the switching node SW in accordance with the Internet
10 Protocol IP. The Internet provider has a connection to the Internet GI (= Global Internet). The operator console NCP, which is extended with additional applications, has a direct connection to the Internet. A service agent SA is connected to the switching node
15 via a two-wire line a/b.

The idea on which the application is based relies on the use of the existing interface between the OSS and the switching node in order to connect the switched connection network PSTN and the Internet. In
20 particular, the software implemented in the switching node is used for the OSS as middleware, and the third-party applications which are arranged on external platforms are provided with the possibility of accessing this middleware. This makes it possible for
25 the Internet to use the resources and the intelligence in the PSTN network and permits it to develop features which require interaction between the PSTN and the Internet network.

Access to the middle ware in the switching
30 node.

The patent application is based on the idea of transferring (porting) the OSS software to a Windows NT platform, and of adding applications which carry out the conventional operator functions automatically. In
35 addition, new applications can be added which function as a proxy agent between the

Internet and the PSTN network. The connection between the operator console as proxy and the Internet could have, for example, a transmission rate of 64 kbit/s. A conventional operator console OSS which is extended with the features according to the application is referred to as NCP (Network Control Platform). The essential functions of an OSS platform which a NCP platform uses are

- call forwarding
- offering a connecting line for an active subscriber
- operating of the connection billing information
- repetition in the event of a line being busy
- delayed call divert.

The NCP uses the existing basic access interface to the switching node and has a TCP/IP (Transmission Control Protocol/Internet Protocol; a communications protocol defined by the US Defence Department for connections and exchanging data in different computer networks) connection to the Internet. The additional expenditure on the switching node is low because almost all the functions required have already been implemented. A third party application can be communicated by using predefined APIs and providing access to all the resources in the switching node.

The application of the present invention to the features described above permits Internet features which have previously only been possible at high cost. Examples of such features are given below.

According to a first embodiment, there is switching between an Internet session and acceptance of an incoming call connection. If an incoming call arrives while a subscriber is surfing the Internet, the subscriber receive a pop-up message on his Internet navigation system (on his screen interface for the

Internet, browser) in order to inform him about the call and to provide him with the possibility of interrupting the Internet session and accepting the incoming call. The pop-up contains/is composed of the subscriber number of the calling subscriber. The feature may be assumed to function as follows;

The Network Control Platform NCP has the following applications:

- 10 • Information recording application: records that the subscriber is occupied with the Internet and stores the IP (Internet Protocol) address and the E164 address of the user.
- 15 • PSTN proxy call application: acts as proxy agent between the Internet subscriber and the PSTN network in order to carry out the call-related functions.
 - The Internet subscriber dials the number which sets up a connection to his ISP POP (Internet Service Provider Point of Presence) as normal
 - 20 - the Internet user sets up an TCP/IP connection of low bandwidth to the NCP: Information recording application via the ISP POP and informs the NCP that it is occupied with the Internet and makes its own IP and E 124 available. This NCP connection is maintained and is used to communicate with the Internet user for an exchange of data.
 - 25 - The user surfs WWW (World Wide Web) pages as normal
 - 30 - an external subscriber attempts to call the Internet user. The switching device (Switch) determines, by comparing the number of the called subscriber with the ISP (Internet Service Provider) numbers that the subscriber is occupied with the Internet and directs the external subscriber to the NCP: PSTN proxy call application.
 - 35

- 5 - The NCP: PSTN proxy call application supplies the external subscriber with a message indicating that attempts are being made to direct the call to a subscriber who is occupied with the Internet and that the process may take longer than normal.

The purpose of this is to ensure that the external subscriber does not abort the call attempt because said subscriber assumes that no-one is accepting the call.

- 5 - The NCP: PSTN proxy call application produces an IP packet and sends it to the subscriber over the Internet. The transmitted IP packet contains the number of the calling subscriber. A connection to the Internet Navigation System (Browser) of the called subscriber triggers a menu pop-up and indicates the number of the calling subscriber and provides the subscriber with a button enabling him to accept the call or refuse it.
- 10 - If the subscriber presses the button in order to accept the call, information to that effect is transmitted to the NCP. The NCP: PSTN proxy call application will reconfigure the call. The NCP: PSTN proxy call application subsequently releases the Internet user from the ISP POP (Internet Service Provider Point of Presence) and brings about a connection, via the interface ISDN-BA, between the external subscriber and the Internet user. As soon as the modem is released, the telephone at the Internet user end rings and a normal call is set up if the user accepts the call.
- 15 - The NCP withdraws completely from the call, i.e. there is no longer connection signaling or a bearer connection to the Internet user. If the subscriber wishes to set up a connection to the Internet again he must start from the beginning.
- 20 - The NCP withdraws completely from the call, i.e. there is no longer connection signaling or a bearer connection to the Internet user. If the subscriber wishes to set up a connection to the Internet again he must start from the beginning.
- 25 - The NCP withdraws completely from the call, i.e. there is no longer connection signaling or a bearer connection to the Internet user. If the subscriber wishes to set up a connection to the Internet again he must start from the beginning.
- 30 - The NCP withdraws completely from the call, i.e. there is no longer connection signaling or a bearer connection to the Internet user. If the subscriber wishes to set up a connection to the Internet again he must start from the beginning.

35 A second embodiment is provided by an advanced message writing display. The subscriber can output an interrogation so that he is informed if an E-mail (letter dispatched in electronic data format) is received from a specific sender or in relation to a specific matter. The subscriber can be informed by means of a specific tone when the telephone call is

accepted or rung with a message which indicates that an E-mail is waiting, or, if the personal computer is set up in such a way

as to start the subscriber E-mail program in order then to download the E-mail. It is to be noted here that the subscriber may receive the information anywhere, for example on a business trip. The feature functions as follows.

The NCP has the following applications:

- PSTN proxy call application: Acts as a proxy agent between the Internet user and the PSTN network in order to carry out the call-related functions.
- E-mail signaling application: At the subscriber's request, this application monitors the E-mail of the subscriber and can trigger additional applications in the NCP if it finds E-mail from a particular subscriber or with a particular content.
- Via the Internet the subscriber outputs an interrogation to the NCP: E-mail signaling application, in order to inform it if an E-mail is received from a particular subscriber or with a particular content. The subscriber can also determine how often the E-mail is interrogated.
- The NCP: E-mail signaling application monitors the E-mail of the subscriber. If an E-mail with a particular distinguishing feature is received, the NCP: PSTN proxy call application is activated.
- The NCP: PSTN proxy call application informs the switching node (Switch) via the ISDN-BA interface, so that said node supplies a specific tone to the subscriber if he accepts the call, or the NCP: PSTN proxy call application can inform the subscriber that an E-mail is waiting. It is to be noted that it is also possible to transmit a message to a pager (mobile receiver which displays alphanumeric characters received by radio) which indicates that an E-mail is waiting, or even to send the E-mail to the pager or to a mobile communications device, for example a mobile phone.

A third embodiment is provided by switching between the use of an Internet navigation program (browsing WWW Pages) and speaking with a real operator who is not connected to the Internet. If a user is surfing on the Internet, he can click on an HTML (Hypertext Markup Language) entry "speak with operator". This causes the Internet session to be interrupted and the subscriber to be connected to a service agent SA via the ISP POP (Internet Service Provider Point of Presence), the Internet GI, the NCP (Network Control Platform), the interface ISDN-BA and the switching node (switch). In the event of the service agent being busy, it is possible for the NCP (Network Control Platform) to be informed via the interface ISDN-BA if the service agent is free. Here, the connection to the Internet is interrupted only if the service agent is available.

A fourth embodiment is provided by interrogating personal messages from the call answering service via the Internet. A subscriber who is, for example, on holiday or on a business trip can interrogate messages from his call answering machine at home via the Internet. The messages may be transmitted as an audio signal stream via the Internet. It is to be noted that the voice quality is satisfactory here since this process does not need to take place in a real-time mode.

Patent Claims

1. An arrangement for connecting a switched connection network to the Internet (GI), in which,
5 - the switched connection network has a switching node (SW)
- the switching node is connected to an operator console (OSS) via an interface,
characterized in that the Internet is connected to the
10 switching node via the operator console (OSS, NCP) and the interface.
2. The arrangement as claimed in claim 1, characterized in that the operator functions (OA) which are implemented in the operator console are designed so
15 that they can be activated.
3. The arrangement as claimed in one of the preceding claims, characterized in that the operator console is in the form of a platform which can be operated with an operating system which is operated
20 under the Windows NT trade name.
4. An operator console (OSS, NCP) for connecting a switched connection network to the Internet (GI), characterized in that the operator functions (OA) which are implemented in the operator console are designed so
25 that they can be activated via a connection to the Internet.
5. The operator console as claimed in claim 4, characterized by a conventional interface for connecting to a switching node (SW), and a port for
30 connecting to the Internet.
6. The operator console as claimed in claim 4 or claim 5,

characterized by an application which brings about automatic execution of an operator function.

7. The operator console as claimed in one of claims 4, 5 or 6, characterized by an application which
5 acts as proxy agent between switched connection network and Internet.

8. A method for accessing resources in a switching node (SW) of a switched connection system by means of the Internet (GI) in which an operator console (OSS) is
10 connected on the one hand to the switching node and on the other to the Internet, [lacuna] as a consequence an Internet-related application is accessed via an API (application programming interface) interface which is
15 provided for an operator application to access a resource of the switching node.

Abstract

Switched connection system with access to its resources via the Internet

5 The operator console of the switching node has a connection to the Internet for accessing the resources of the switching node, the basis for features which require interaction between the switched connection network (PSTN) and the Internet being provided at low cost.

10 Fig. 1

FIG 1

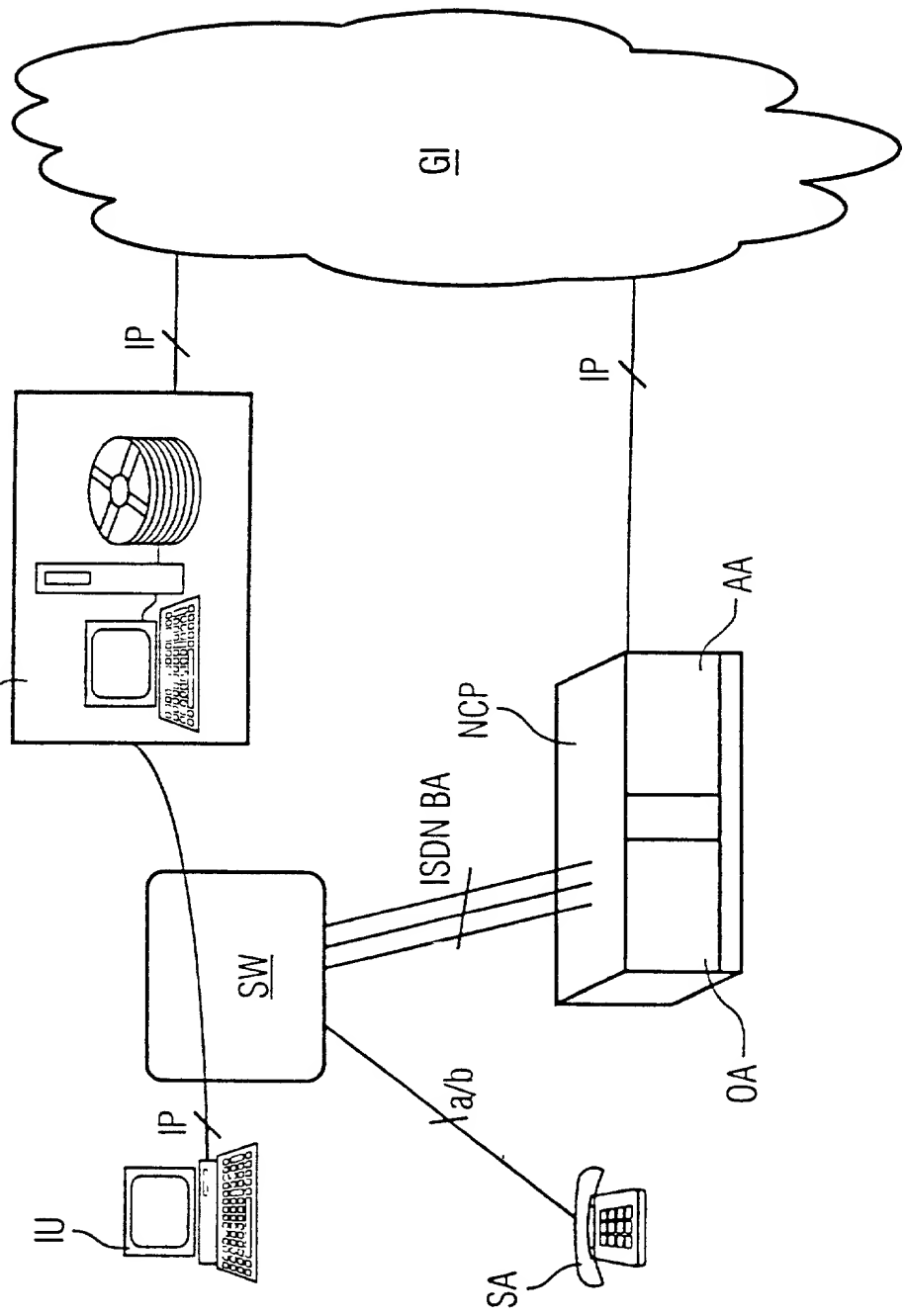


FIG 2

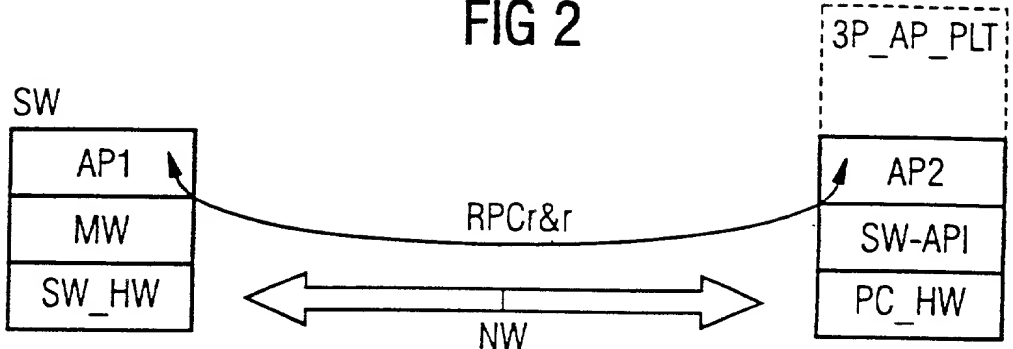
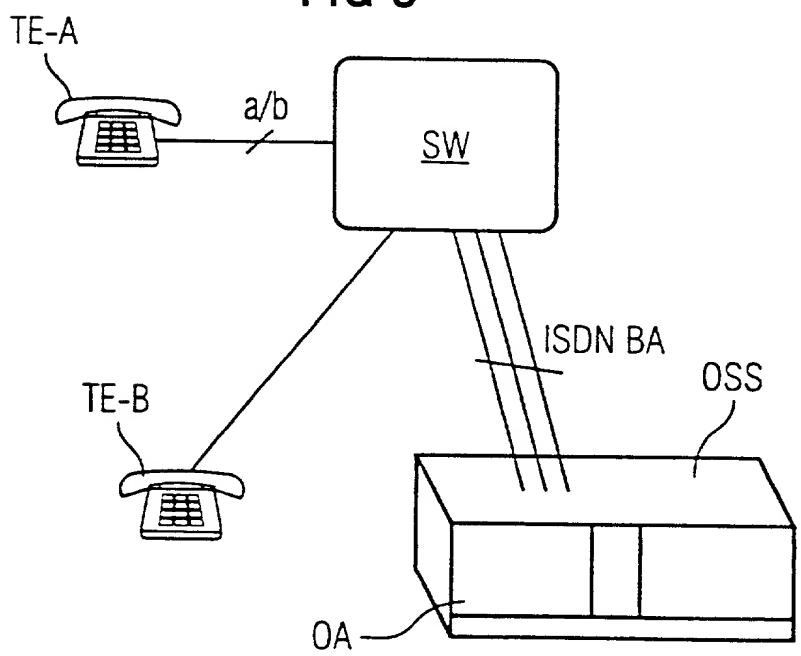


FIG 3



Declaration and Power of Attorney For Patent Application

Erklärung Für Patentanmeldungen Mit Vollmacht

German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides Statt:

As a below named inventor, I hereby declare that:

dass mein Wohnsitz, meine Postanschrift, und meine Staatsangehörigkeit den im Nachstehenden nach meinem Namen aufgeführten Angaben entsprechen,

My residence, post office address and citizenship are as stated below next to my name,

dass ich, nach bestem Wissen der ursprüngliche, erste und alleinige Erfinder (falls nachstehend nur ein Name angegeben ist) oder ein ursprünglicher, erster und Miterfinder (falls nachstehend mehrere Namen aufgeführt sind) des Gegenstandes bin, für den dieser Antrag gestellt wird und für den ein Patent beantragt wird für die Erfindung mit dem Titel:

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

Wahlvermittlungssystem mit Zugang zu seinen Ressourcen durch das Internet

deren Beschreibung

the specification of which

(zutreffendes ankreuzen)

(check one)

☒ hier beigefügt ist.

☐ is attached hereto.

☐ am _____ als

☐ was filed on _____ as

PCT internationale Anmeldung

PCT international application

PCT Anwendungsnummer _____

PCT Application No. _____

eingereicht wurde und am _____

and was amended on _____

abgeändert wurde (falls tatsächlich abgeändert).

(if applicable)

Ich bestätige hiermit, dass ich den Inhalt der obigen Patentanmeldung einschliesslich der Ansprüche durchgesehen und verstanden habe, die eventuell durch einen Zusatzantrag wie oben erwähnt abgeändert wurde.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above.

Ich erkenne meine Pflicht zur Offenbarung irgendwelcher Informationen, die für die Prüfung der vorliegenden Anmeldung in Einklang mit Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) von Wichtigkeit sind, an.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

Ich beanspruche hiermit ausländische Prioritätsvorteile gemäss Abschnitt 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 119 aller unten angegebenen Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde, und habe auch alle Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde nachstehend gekennzeichnet, die ein Anmeldedatum haben, das vor dem Anmeldedatum der Anmeldung liegt, für die Priorität beansprucht wird.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

German Language Declaration

Prior foreign applications
Priorität beansprucht

Priority Claimed

197 57 613.3 Germany 23. Dezember 1997
(Number) (Country) (Day Month Year Filed)
(Nummer) (Land) (Tag Monat Jahr eingereicht)

☒ ☐
Yes No
Ja Nein

(Number) (Country)
(Nummer) (Land)

(Day Month Year Filed)
(Tag Monat Jahr eingereicht)

☐ ☐
Yes No
Ja Nein

(Number) (Country)
(Nummer) (Land)

(Day Month Year Filed)
(Tag Monat Jahr eingereicht)

☐ ☐
Yes No
Ja Nein

Ich beanspruche hiermit gemäss Absatz 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 120, den Vorzug aller unten aufgeführten Anmeldungen und falls der Gegenstand aus jedem Anspruch dieser Anmeldung nicht in einer früheren amerikanischen Patentanmeldung laut dem ersten Paragraphen des Absatzes 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 122 offenbart ist, erkenne ich gemäss Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) meine Pflicht zur Offenbarung von Informationen an, die zwischen dem Anmeldedatum der früheren Anmeldung und dem nationalen oder PCT internationalen Anmeldedatum dieser Anmeldung bekannt geworden sind.

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §122, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

(Application Serial No.)
(Anmeldeseriennummer)

(Filing Date)
(Anmeldedatum)

(Status)
(patentiert, anhängig,
aufgegeben)

(Status)
(patented, pending,
abandoned)

(Application Serial No.)
(Anmeldeseriennummer)

(Filing Date)
(Anmeldedatum)

(Status)
(patentiert, anhängig,
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(Status)
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Ich erkläre hiermit, dass alle von mir in der vorliegenden Erklärung gemachten Angaben nach meinem besten Wissen und Gewissen der vollen Wahrheit entsprechen, und dass ich diese eidesstattliche Erklärung in Kenntnis dessen abgebe, dass wissentlich und vorsätzlich falsche Angaben gemäss Paragraph 1001, Absatz 18 der Zivilprozessordnung der Vereinigten Staaten von Amerika mit Geldstrafe belegt und/oder Gefängnis bestraft werden koennen, und dass derartig wissentlich und vorsätzlich falsche Angaben die Gültigkeit der vorliegenden Patentanmeldung oder eines darauf erteilten Patentes gefährden können.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

German Language Declaration

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POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

Messrs. John D. Simpson (Registration No. 19,842) Lewis T. Steadman (17,074), William C. Stueber (16,453), P. Phillips Connor (19,259), Dennis A. Gross (24,410), Marvin Moody (16,549), Steven H. Noll (28,982), Brett A. Valiquet (27,841), Thomas I. Ross (29,275), Kevin W. Guynn (29,927), Edward A. Lehmann (22,312), James D. Hobart (24,149), Robert M. Barrett (30,142), James Van Santen (16,584), J. Arthur Gross (13,615), Richard J. Schwarz (13,472) and Melvin A. Robinson (31,870), David R. Metzger (32,919), John R. Garrett (27,888) all members of the firm of Hill, Steadman & Simpson, A Professional Corporation.

And I hereby appoint

Telefongespräche bitte richten an:
(Name und Telefonnummer)

Direct Telephone Calls to: (name and telephone number)

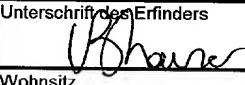
312/876-0200

Ext. _____

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Send Correspondence to:

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A Professional Corporation
85th Floor Sears Tower, Chicago, Illinois 60606

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Unterschrift des Erfinders 	Inventor's signature
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United States of America	
Voller Name des zweiten Miterfinders (falls zutreffend):	Full name of second joint inventor, if any:
Unterschrift des Erfinders	Second Inventor's signature
Datum	Date
Wohnsitz	Residence
Staatsangehörigkeit	Citizenship
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(Bitte entsprechende Informationen und Unterschriften im Falle von dritten und weiteren Miterfindern angeben).

(Supply similar information and signature for third and subsequent joint inventors).